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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
WASSUM, LUKE S	

ART UNIT	PAPER NUMBER
2167	

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/668,995	KOJIMA ET AL.	
	Examiner	Art Unit	
	Luke S. Wassum	2167	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,16-18,20-22 and 24-30* is/are pending in the application.

4a) Of the above claim(s) *24-30* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14,16-18 and 20-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 September 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The Applicants' amendment, filed 3 March 2006, has been received, entered into the record, and considered.

2. As a result of the amendment, claims 1-14, 16-18 and 20-22 have been amended, claims 15, 19 and 23 have been canceled, and new claims 24-30 have been added. Claims 1-14, 16-18, 20-22 and 24-30 are now pending in the application.

Election/Restrictions

3. Claims 24-30 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 9 June 2006.

The Invention

4. The claimed invention is a data management apparatus wherein upon the request by an application program for data, a pointer is returned to the application program, said pointer addressing an area in memory which contains

the address of the desired data, thus allowing the application to directly address the data.

Priority

5. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

A priority date of 17 November 1999, based on Japanese patent document 11-327483, has been established for the instant application.

Specification

6. In view of the Applicants' amendment to the specification, the pending objection is withdrawn.

Claim Objections

7. In view of the Applicants' amendment to claim 10, the examiner withdraws the pending claim objection.

8. Claims 20-22 are objected to because of the following informalities:

Independent claim 20 recites a computer program comprising a number of steps. A computer program comprises instructions for execution on a computer,

not steps. The claim should be more properly worded as, for instance, 'comprising instructions that when executed on a computer perform the steps of...'.

9. Claims 21 and 22, filly incorporating the deficiencies of parent claim 20, are likewise objected to.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

10. In view of the Applicants' amendment to claims 4, 9, 10 and 12-14, the examiner withdraws the pending claim rejections under 35 U.S.C. § 112.

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

13. Regarding claim 1, this claim attempts to include both a system and a method for using that system. For instance, the last limitation includes a lender (system) reading out a pointer (method). Such a claim makes it unclear whether infringement would occur when one creates a system that allows the reading out of the pointer, or when a user actually uses the lender to read out the pointer. See *IPXL Holdings, LLC v. Amazon.com, Inc.*, CAFC 05-1009, -1487, (Fed. Cir. 2005).

14. Claims 2-14, all of which at least fully incorporate the deficiencies of the parent claim, and some of which also include additional instances of said deficiencies, are likewise rejected.

Claim Rejections - 35 USC § 101

15. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

16. Claims 1-14 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

17. Regarding claim 1, this claim is for an apparatus. However, all of the elements claimed could be reasonably interpreted in light of the disclosure by an ordinary artisan as being software alone, and thus is directed to software *per se,* which is non-statutory.

In order for such a software claim to be statutory, it must be claimed in combination with an appropriate medium and/or hardware to establish a statutory category of invention and enable any functionality to be realized.

18. Claims 2-14, fully incorporating the deficiencies of their parent claim, are likewise rejected.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

20. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

21. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

22. Claims 1, 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Admitted Prior Art** in view of **Koyama** (Japanese Patent Publication 7-295814).

23. Regarding claim 1, the Applicants teach as **Admitted Prior Art** a data management apparatus for managing a plurality of data used when executing an application program included in a switching system for providing services related to communication substantially as claimed, comprising:

a) a data field storing the data (see data field in Figure 21, labeled as Prior Art; see also Applicants' specification, page 3, last paragraph through page 4, first paragraph);

b) an address acquirer acquiring an address in said data field of the data for which an access is requested by the application program (see pointer acquisition step in Figure 21, labeled as Prior Art; see also Applicants' specification, page 3, last paragraph through page 4, first paragraph); and

c) a lender lending the address of the data to the application program (see pointer lending step in Figure 21, labeled as Prior Art; see also Applicants' specification, page 3, last paragraph through page 4, first paragraph).

The **Admitted Prior Art** fails to explicitly teach a data management apparatus comprising a lending pointer table storing at least one of pointer

records having the acquired address and a pointer corresponding to the acquired address, and a lender reading out the pointer from the lending pointer table.

Koyama, however, teaches a data management apparatus comprising a lending pointer table storing at least one of pointer records having the acquired address and a pointer corresponding to the acquired address, and a lender reading out the pointer from the lending pointer table (see Constitution section, page 2; see also text of claim 1, beginning on page 2; see also paragraph [0016], beginning on page 10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a lending pointer table for storing pointer records to the acquired address, since this would conceal the details of the address management mechanism from the application program, thus precluding a specific application from accessing data improperly (see text of claim 2, page 3).

24. Regarding claim 16, the Applicants teach as **Admitted Prior Art** a method for managing data used when executing an application program included in a

switching system for providing services related to communication substantially as claimed, comprising:

a) a data field storing the data (see data field in Figure 21, labeled as Prior Art; see also Applicants' specification, page 3, last paragraph through page 4, first paragraph);

b) an address acquirer acquiring an address in said data field of the data for which an access is requested by the application program (see pointer acquisition step in Figure 21, labeled as Prior Art; see also Applicants' specification, page 3, last paragraph through page 4, first paragraph); and

c) a lender lending the address of the data to the application program (see pointer lending step in Figure 21, labeled as Prior Art; see also Applicants' specification, page 3, last paragraph through page 4, first paragraph).

The **Admitted Prior Art** fails to explicitly teach a method comprising a lending pointer table storing at least one of pointer records having the acquired address and a pointer corresponding to the acquired address, and a lender reading out the pointer from the lending pointer table.

Koyama, however, teaches a method comprising a lending pointer table storing at least one of pointer records having the acquired address and a pointer corresponding to the acquired address, and a lender reading out the pointer from the lending pointer table (see Constitution section, page 2; see also text of claim 1, beginning on page 2; see also paragraph [0016], beginning on page 10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a lending pointer table for storing pointer records to the acquired address, since this would conceal the details of the address management mechanism from the application program, thus precluding a specific application from accessing data improperly (see text of claim 2, page 3).

25. Regarding claim 20, the Applicants teach as **Admitted Prior Art** a computer readable medium storing a program for managing data used when executing an application program included in a switching system for providing services related to communication substantially as claimed, the program comprising the steps of:

a) a data field storing the data (see data field in Figure 21, labeled as Prior Art; see also Applicants' specification, page 3, last paragraph through page 4, first paragraph);

b) an address acquirer acquiring an address in said data field of the data for which an access is requested by the application program (see pointer acquisition step in Figure 21, labeled as Prior Art; see also Applicants' specification, page 3, last paragraph through page 4, first paragraph); and

c) a lender lending the address of the data to the application program (see pointer lending step in Figure 21, labeled as Prior Art; see also Applicants' specification, page 3, last paragraph through page 4, first paragraph).

The **Admitted Prior Art** fails to explicitly teach a computer readable medium comprising a lending pointer table storing at least one of pointer records having the acquired address and a pointer corresponding to the acquired address, and a lender reading out the pointer from the lending pointer table.

Koyama, however, teaches a computer readable medium comprising a lending pointer table storing at least one of pointer records having the acquired

address and a pointer corresponding to the acquired address, and a lender reading out the pointer from the lending pointer table (see Constitution section, page 2; see also text of claim 1, beginning on page 2; see also paragraph [0016], beginning on page 10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate a lending pointer table for storing pointer records to the acquired address, since this would conceal the details of the address management mechanism from the application program, thus precluding a specific application from accessing data improperly (see text of claim 2, page 3).

26. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Admitted Prior Art** in view of **Koyama** (Japanese Patent Publication 7-295814) as applied to claims 1, 16 and 20 above, and further in view of **Cabrera et al.** (U.S. Patent 6,029,160).

27. Regarding claim 3, **Admitted Prior Art** and **Koyama** teach a data management apparatus substantially as claimed.

Neither **Admitted Prior Art** nor **Koyama** explicitly teaches a data management apparatus including a deleter deleting the data stored in said data field, and a record deleter deleting the pointer record having the address in said data field of the data which is deleted by said deleter from said lending pointer table.

Cabrera et al., however, teaches a data management apparatus including a deleter deleting the data stored in said data field, and a record deleter deleting the pointer record having the address in said data field of the data which is deleted by said deleter from said lending pointer table (see disclosure of analogous functionality at col. 9, lines 26-38 and col. 10, lines 28-35).

It would have been obvious to one of ordinary skill in the art at the time of the invention to delete data and references to said data, since this is the only way for obsolete data to be removed from the system.

28. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Admitted Prior Art** in view of **Koyama** (Japanese Patent Publication 7-295814) in

view of **Cabrera et al.** (U.S. Patent 6,029,160) as applied to claim 3 above, and further in view of **Hacherl et al.** (U.S. Patent 5,787,442).

29. Regarding claim 4, **Admitted Prior Art, Koyama** and **Cabrera et al.** teach a data management apparatus substantially as claimed.

None of **Admitted Prior Art, Koyama** nor **Cabrera et al.** explicitly teach a data management apparatus including an invalidity informer for informing the application program of invalidation of the lent pointer when the record deleter deletes the pointer record having the lent pointer.

Hacherl et al., however, teaches a data management apparatus including an invalidity informer for informing the application program of invalidation of the lent pointer when the record deleter deletes the pointer record having the lent pointer (see Abstract; see also col. 1, line 34 through col. 2, line 13).

It would have been obvious to one of ordinary skill in the art at the time of the invention to inform interested processes when a pointer record is deleted, since this allows the interested process to take appropriate actions to endure that referential integrity is maintained (see col. 1, line 34 through col. 2, line 13).

30. Claims 2, 5, 6, 17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Admitted Prior Art** in view of **Koyama** (Japanese Patent Publication 7-295814) as applied to claims 1, 16 and 20 above, and further in view of **Hale et al.** (U.S. Patent 5,502,836).

31. Regarding claims 2, 17 and 21, **Admitted Prior Art** and **Koyama** teach a data management apparatus substantially as claimed.

Koyama additionally teaches a data management apparatus, method and computer readable medium further comprising a reader receiving the lent pointer from the application program, reading out the address corresponding to the lent pointer from the lending pointer table, reading out the data storing the read address in said data field, and giving the read data to the application program (see Constitution section, page 2; see also text of claim 1, beginning on page 2; see also paragraph [0016], beginning on page 10).

Neither **Admitted Prior Art** nor **Koyama** explicitly teaches a data management apparatus including a relocater for relocating data stored in said

data field such that the address stored in the pointer record is changed into an address of a relocation destination in the data field in response to relocation of the data stored in the data field.

Hale et al., however, teaches a data management apparatus including a relocater for relocating data stored in said data field (see col. 2, lines 55-57), and an address updater detecting the address of the data which is relocated and updating the detected address to an address after the relocation process (see col. 2, lines 57-59),

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the claimed relocation functionality, since this allows data to be reorganized on the disks such that it can be accessed more efficiently while maintaining the accessibility of the data by applications.

32. Regarding claims 5 and 6, **Admitted Prior Art** and **Koyama** teach a data management apparatus substantially as claimed.

Neither **Admitted Prior Art** nor **Koyama** explicitly teaches a data management apparatus including a relocater for relocating data stored in said data field.

Hale et al., however, teaches a data management apparatus including a relocater for relocating data stored in said data field (see col. 2, lines 55-57), and an address updater detecting the address of the data which is relocated and updating the detected address to an address after the relocation process (see col. 2, lines 57-59), and wherein the address updater waits until any pending read requests of the data being relocated are completed (see disclosure that the relocation process waits for a lull in I/O before executing, col. 12, lines 10-64).

It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the claimed relocation functionality, since this allows data to be reorganized on the disks such that it can be accessed more efficiently.

33. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Admitted Prior Art** in view of **Koyama** (Japanese Patent Publication 7-295814) as

applied to claims 1, 16 and 20 above, and further in view of **Watson et al.** (U.S. Patent 4,755,939).

34. Regarding claim 7, **Admitted Prior Art** and **Koyama** teach a data management apparatus substantially as claimed.

Neither **Admitted Prior Art** nor **Koyama** explicitly teaches a data management apparatus including a record deleter that performs garbage collection.

Watson et al., however, teaches a data management apparatus including a record deleter that performs garbage collection (see disclosure that the system detects when no more pointers to a given cell exist, and then performs garbage collection, freeing the cell (see Abstract, et seq.).

It would have been obvious to one of ordinary skill in the art at the time of the invention to institute garbage collection, since it is important to provide some means of reclaiming cells which are no longer required, so that they can be re-allocated for further use (see col. 1, lines 21-23).

35. Claims 8, 12, 18 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Admitted Prior Art** in view of **Koyama** (Japanese Patent Publication 7-295814) as applied to claims 1, 16 and 20 above, and further in view of **Hitz et al.** (U.S. Patent 5,819,292).

36. Regarding claims 8, 18 and 22, **Admitted Prior Art** and **Koyama** teach a computer readable medium, data management apparatus and method substantially as claimed.

Neither **Admitted Prior Art** nor **Koyama** explicitly teaches a computer readable medium, data management apparatus and method further comprising a data setting area management table, an allocation controller and an adder.

Hitz et al., however, teaches a computer readable medium, data management apparatus and method comprising a data setting area management table storing information related to the use-condition of each data setting area (see disclosure of the block map and inode file, both of which provide analogous functionality, col. 9, line 50 through col. 10, line 48), an allocation controller referring to said data setting area management table, and determining at least

one of empty data setting areas in order to allocate a data requested to be added (see disclosure that new data is only written to unallocated blocks, col. 4, lines 14-16), and an adder storing the data requested to be added to at least one of the empty data setting areas which is determined by said allocation controller (see disclosure that new data is only written to unallocated blocks, col. 4, lines 14-16).

It would have been obvious to one of ordinary skill in the art at the time of the invention to implement a system of file space allocation mapping such as that claimed, since the operating system must have a way of accessing data for reading, and also must have to capability to write new data to memory/disk space that is unoccupied.

37. Regarding claim 12, **Hitz et al.** additionally teaches a data management apparatus wherein said data setting area management table holds link information related to a link between data setting areas about a data held by the plurality of data setting areas, wherein the link information indicates a connection relationship of the plurality of data setting areas (see illustration of the claimed links between inodes in, for instance, drawing Figure 9C et seq.).

38. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Admitted Prior Art** in view of **Koyama** (Japanese Patent Publication 7-295814) in view of **Hitz et al.** (U.S. Patent 5,819,292) as applied to claims 8, 18 and 22 above, and further in view of **Hacherl et al.** (U.S. Patent 5,787,442).

39. Regarding claim 11, **Admitted Prior Art, Koyama** and **Hitz et al.** teach a data management apparatus substantially as claimed.

None of **Admitted Prior Art, Koyama** nor **Hitz et al.** explicitly teach a data management apparatus wherein the lender informs the application program that there is no data for which access is requested by the application program when the detected use-condition is under the condition of deleted.

Hacherl et al., however, teaches a data management apparatus wherein the calling application is notified when requested data has been deleted (see Abstract; see also col. 1, line 34 through col. 2, line 13).

It would have been obvious to one of ordinary skill in the art at the time of the invention to inform interested processes when a pointer record is deleted,

since this allows the interested process to take appropriate actions to endure that referential integrity is maintained (see col. 1, line 34 through col. 2, line 13).

Response to Arguments

40. Applicant's arguments filed 3 March 2006 have been fully considered but they are not persuasive.

41. Regarding the Applicants' argument that the Koyama reference fails to disclose a lent pointer table, the examiner respectfully disagrees and directs the Applicants' attention to pages 2-3, disclosing the use of a pointer table (analogous to the claimed lent pointer table) containing a pointer showing the access route of the memory region where the data is stored (page 3, third paragraph).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luke S. Wassum whose telephone number is 571-272-4119. The examiner can normally be reached on Monday-Friday 8:30-5:30, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Cottingham can be reached on 571-272-7079. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

In addition, INFORMAL or DRAFT communications may be faxed directly to the examiner at 571-273-4119. Such communications must be clearly marked as INFORMAL, DRAFT or UNOFFICIAL.

Customer Service for Tech Center 2100 can be reached during regular business hours at (571) 272-2100, or fax (571) 273-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Luke S. Wassum
Primary Examiner
Art Unit 2167

lsw
4 August 2006